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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,404	03/16/2004	Ira M. Blevis	154/03364	3708

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WOLF, BLOCK, SCHORR & SOLIS-COHEN LLP
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EXAMINER

ROSENBERGER, FREDERICK F

ART UNIT	PAPER NUMBER
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2884

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/802,404	BLEVIS ET AL.	
	Examiner	Art Unit	
	Frederick F. Rosenberger	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-28 is/are allowed.
- 6) ☒ Claim(s) 29-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's reply, filed 16 October 2006, has been received and entered.

Accordingly, claims 29 and 32 have been amended. No claims have been cancelled or added. Thus, claims 1-32 remain currently pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 29 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Gagnon et al. (US Patent # 6,147,353).

With regards to claim 29, Gagnon et al. disclose a gamma camera system (Figure 4) comprising:

A pair of gamma camera heads **200, 202** connected to form an angle (column 6, lines 7-10) and adapted to view a reconstruction volume **208** from a

plurality of directions (column 7, lines 14-20) having an axis perpendicular to a plane containing the right angle; and,

A controller **78** (Figure 1; column 6, lines 3-6) adapted to reconstruct a three dimensional image of radiation sources in the reconstruction volume from data acquired by the camera heads as they rotate about the axis;

Wherein each of the pair of gamma camera heads **200, 202** has a dimension in the plane containing the angle smaller than a largest dimension of the reconstruction volume perpendicular to the axis (Figure 4; column 6, lines 38-40).

Gagnon et al. further disclose that the camera heads are maintained at either a 90° or 180° angle with respect to each other (see Figures 4 and 5). As applicant has not explicitly defined what the fixed relationship in the claim language constitutes, "a fixed relationship" must be given its broadest reasonable interpretation. As such, the fixed relationship of a 90° or 180° orientation between the detectors during a scan has been interpreted to satisfy the claim limitations.

With regards to claim 30, Gagnon et al. disclose that the angle between the detector heads is a right angle (column 6, lines 7-10; Figure 4).

4. Claims 29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Conwell (US Patent Application Publication # 2005/0189494).

With regards to claim 29, Conwell discloses a gamma camera system comprising:

A pair of gamma camera heads **300, 310** (Figure 3) connected to form an angle therebetween and adapted to view a reconstruction volume **110** from a plurality of directions (paragraph 26) having an axis **140** perpendicular to the plane containing the angle; and,

A controller **150** for reconstructing a three dimensional SPECT image of radiation sources in the reconstruction volume from data acquired by the heads as they rotate about the axis (paragraph 26);

Wherein each of the pair of gamma camera heads has a dimension smaller than the largest dimension of the reconstruction volume (Figure 3; paragraphs 13, 17, 18);

Wherein the gamma camera heads maintain a fixed angular relationship with respect to each other during the scan.

With regards to claim 31, Conwell discloses the claimed limitation for the dimensions of the camera heads (paragraph 17).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conwell, as applied to claim 29 above.

With regards to claim 30, Conwell discloses orientation of the camera heads at angles other than 90°. However, Conwell allows for repositioning of the camera heads to enable different coverage of the detected area within the body (paragraphs 28-29). It is further noted that a 90° orientation for the detector heads is common in the art, so as to enable a complete 180° data set to be collected by rotating the detector heads only 90° (see, for example, Gagnon et al., column 1, lines 41-55). Thus, it would have been obvious for a person having ordinary skill in the art at the time the invention was made to employ a 90° orientation for the detector heads so as to enable a complete 180° data set to be collected by rotating the detector heads only 90°, as is well known in the art.

With regards to claim 32, Conwell does not disclose that the heads are rigidly connected at an angle. In fact, Conwell discusses being able to reposition the camera heads for different detection regions. However, the purpose of this is to be able to adapt to different detection requirements. Thus, for a given purpose (i.e. a brain scan

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study or heart study), one would not need the adaptability taught by Conwell. Further, Conwell does teach that the detectors retain their respective orientation during the scan. As such, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make a rigid connection between the gamma camera heads, since it has been held that making separate structures into a single piece without producing any new and unexpected results involves only routine skill in the art. In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

7. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gagnon et al., as applied to claim 29 above.

With regards to claim 31, Gagnon et al. disclose all the limitations of parent claim 29, as discussed above. However, Gagnon et al. are silent with regards to the dimension of the gamma camera heads in relation to the largest dimension of the reconstruction volume. It would have been obvious for a person having ordinary skill in the art at the time the invention was made to choose a gamma camera head dimension between 50% and 75% of the largest dimension, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

8. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guerard et al., (US Patent Application 5,752,916).

With regards to claim 29, Guerard et al. disclose a gamma camera system (Figures 1 and 3-5) comprising:

A pair of gamma camera heads **9, 10** (Figure 1) with detector surfaces **25** (Figures 3-5) connected to arms to form an angle (Figure 4) between the detector surfaces and adapted to view a reconstruction volume, in the form of the patient's body **16** from a plurality of directions having an axis perpendicular to a plane containing the angle (Figure 5) wherein each of the pair of gamma camera heads **9, 10** has a dimension in the plane containing the angle smaller than a largest dimension of the reconstruction volume perpendicular to the axis (column 4, lines 44-46; Figure 4).

Guerard et al. do not specifically disclose a controller for reconstructing the data acquired by the camera heads. However, Guerard et al. do imply the existence of such a controller, as evidenced by the disclosure in column 4, lines 5-13 and column 5, lines 30-47). Further it is well known in the art to include such a controller for the construction of images based on the gamma camera data (see, for example, Gagnon et al.). Thus, it would have been obvious for a person having ordinary skill in the art at the time the invention was made to include a controller for processing the gamma camera data, since the existence of such a controller is implied by Guerard et al. and the use of a controller for image reconstruction is well known in the art.

Guerard et al. further disclose that the camera heads are maintained at a 90° angle with respect to each other (see Figures 1 and 4). As applicant has not explicitly defined what the fixed relationship in the claim language constitutes, "a fixed

relationship” must be given its broadest reasonable interpretation. As such, the fixed relationship of a 90° orientation between the detectors during a scan has been interpreted to satisfy the claim limitations.

With regards to claim 30, Guerard et al. disclose a gamma camera system according to claim 29 wherein the angle is substantially equal to a right angle (column 5, lines 30-33; Figures 4 and 5).

With regards to claim 31, Guerard et al. are silent with regards to the dimension of the gamma camera heads in relation to the largest dimension of the reconstruction volume. It would have been obvious for a person having ordinary skill in the art at the time the invention was made to choose a gamma camera head dimension between 50% and 75% of the largest dimension, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With regards to claim 32, Guerard et al. do not specifically disclose that the gamma camera heads are rigidly connected at the angle, although Guerard et al. do disclose that the heads retain their perpendicular orientation throughout the scan trajectory (column 5, lines 30-47). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make a rigid connection between the gamma camera heads, since it has been held that making separate structures into a single piece without producing any new and unexpected results involves only routine skill in the art. In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Allowable Subject Matter

9. Claims 1-28 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: The reasons for allowance for claims 1-28 were communicated in the previous Office action.

Response to Arguments

11. Applicant has amended the claims to include new limitations regarding the fixed relationship of the gamma camera heads with respect to each other. As such, a new rejection based on Conwell has been made to address these new limitations. Applicant's amendment necessitated the new grounds of rejection.

12. Applicant's arguments filed 16 October 2006 have been fully considered but they are not persuasive.

13. Regarding the Gagnon reference, applicant argues that Gagnon requires the camera heads to be independently laterally movable during the acquisition process (see page 6, lines 7-12). Thus, by applicant's reasoning, this would not satisfy the claimed limitations. The examiner respectfully disagrees. As discussed above in the rejection, the wording of the claim is for the camera heads to have "a fixed relationship with respect to each other." Neither the claim nor the specification explicitly defines what

this fixed relationship constitutes. As such, the terms must be given their broadest reasonable interpretation. With this in mind, a fixed angular relationship during the acquisition process would constitute a fixed relationship of the camera heads with respect to each other. Gagnon does meet this limitation by suggesting rotating and translating the detectors around the subject, wherein the detectors are maintained at a 90° orientation with respect to each other. Thus, the rejection based on Gagnon is maintained.

14. Regarding the Guerard reference as applied to claims 29-31, applicant argues that Guerard also does not meet the fixed relationship limitation of the amended claim (see page 6, lines 16-23). As pointed out by applicant, Guerard suggests two embodiments, wherein the second embodiment has the heads kept at a 90° angle during acquisition (see page 6, lines 18-20). However, applicant alleges that this does not constitute a fixed relationship because the lateral positions of the detectors must be pre-set at specific patient positions (see page 6, lines 20-22). The examiner respectfully disagrees. As discussed above with regards to Gagnon, there is no requirement in the claim limitations as to what constitutes a fixed relationship or the timing of the fixed relationship. Giving the terms their broadest reasonable interpretation would lead one of ordinary skill in the art to infer that a fixed angular relationship during data acquisition would meet the claim limitations. Guerard clearly discloses this, as acknowledged by applicant. Thus, the rejection of claims 29-31 based on Guerard is maintained.

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15. Regarding the Guerard reference as applied to claim 32, applicant argues that Guerard does not teach rigidly connecting the heads at an angle (see page 6, lines 24-25). The examiner has acknowledged that Guerard does not explicitly teach a rigid connection. However, as discussed in the rejection above, such a connection would have been obvious to one of ordinary skill in the art. Especially in view of the fact that other prior art gamma camera systems employ rigid connection at a fixed angle (see, for example, the previously cited patents to Lange and Maor), it is unclear from applicant's arguments why such a modification of Guerard would not be obvious. Thus, the rejection of claim 32 based on Guerard is maintained.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick F. Rosenberger whose telephone number is 571-272-6107. The examiner can normally be reached on Monday - Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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